

REMARKS

Reconsideration and allowance of this application are respectfully requested in light of the following remarks.

Minor amendments to claims 38 and 61 are made herein to enhance the readability thereof. These amendments are considered to be non-narrowing, and no estoppel should be deemed to attach thereto.

The Applicants acknowledge with appreciation the indication in the Office Action that claims 46, 47, and 55-57 are directed to allowable subject matter and would be allowed if placed in independent form. However, it is submitted that the present independent claims 38 and 61 are allowable in their present form, so that claims 46, 47, and 55-57 have not been amended into independent form.

Summary of Rejections

Claims 38-45, 48, 51-54, 58-63 and 75 are rejected under 35 USC §103(a), as being unpatentable over Love et al. (US 2004/0219920) in view of Legg et al. (US 6 414 947). Dependent claim 49 is rejected under 35 USC §103(a), as being unpatentable over Love et al. (US 2004/0219920) in view of Legg et al. (US 6 414 947), and further in view of Seo et al. (US 2003/01851559). Dependent claim 50 is rejected under 35 USC §103(a), as being unpatentable over Love et al. (US 2004/0219920) in view of Legg et al. (US 6 414 947), and further in view of Zhang et al. (US 2005/0094600). The Applicants respectfully traverse these rejections as follows.

Features of Instant Claim 38

Claim 38 defines a method for communicating information relating to the scheduling of uplink data transmissions relating to Hybrid Automatic Repeat reQuest (HARQ) processes. In this method, a mobile terminal uses a plurality of HARQ processes to transmit uplink data via an Enhanced Uplink Dedicated Channel of a Universal Mobile Telecommunication System (UMTS) to a plurality of base stations during soft handover, and at least one base station of the plurality of base stations schedules uplink data transmissions of the mobile terminal in soft handover. The method of claim 38 includes operations wherein at least one scheduling base station among the plurality of base stations (1) determines scheduling information, for the mobile terminal, indicative of allocated maximum amount of uplink resources applicable to the individual HARQ processes used for uplink data transmission, and (2) transmits information, to at least one other base station, to inform the at least one other base station with respect to the applicability of allocated maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes. The method further includes an operation wherein the at least one other base station schedules at least one other mobile terminal in communication with a respective base station based on the information received from the scheduling base station.

In brief, according to the invention of claim 38, the at least one scheduling base station (first base station) determines scheduling information for a mobile terminal (first mobile terminal) indicative of an allocated maximum amount of uplink resources applicable to the individual HARQ processes used for uplink data transmission. The scheduling base station (first base station) transmits scheduling information indicative of allocated maximum amount of uplink resources to at least one other base station (second base station) which is part of the first

mobile terminal's active set. The scheduling base station (first base station) schedules communication with the first mobile terminal based on the scheduling information, and the other base station (second base station) schedules communication with a different mobile terminal (second mobile terminal) based on the scheduling information received from the scheduling base station. In this way, the scheduling (first) base station transmits information to the other (second) base station to inform the other (second) base station with respect to the applicability of an allocated maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes. The other (second) base station schedules at least one other (second) mobile terminal in communication with a respective (for example, third) base station based on the information received from the scheduling base station. In at least some instances, the claimed subject matter increases the efficiency of soft handover by providing coordination among multiple base stations (see specification paragraph [0095]).

Differences of Claim 38 over the Combined Teachings of Applied Prior Art

At the outset, it is noted that Love et al. state in paragraphs [0006] and [0037] that his invention is directed to avoiding communications among the Active Set BTSs. Legg et al., on the other hand, teach a communication scheme which relies on communications among base stations (an inter-base station communication scheme). Thus, to incorporate, as proposed by the Final Rejection, the inter-base station communication scheme of Legg et al. into Love et al. would have contradicted the primary objective of Love et al. Thus, those skilled in the art would not have been led to combine the teachings of Love et al. and Legg et al. given that the result would have been a system that would contradict what is explicitly mentioned as the gist of the invention of Love et al.

Moreover, even if for some reason the teachings of Love et al. and Legg et al. were combined as proposed in the Final Rejection, the result still would lack the subject matter of Applicants' claim 38 directed to communication of "information ... on the applicability of allocated maximum amount of uplink resources ... on the individual HARQ processes." Love et al. does not teach the communication of information on the applicability of the maximum amount of uplink resources on the individual HARQ processes.

More particularly, it is noted that the Final Rejection, in the Response to Arguments Section 1, states that paragraph [0018] of Love et al. discloses the feature of claim 38 directed to

"determining at the scheduling base station scheduling information for the mobile terminal indicative of an allocated maximum amount of uplink resources applicable to the individual HARQ processes used for uplink transmission"

Paragraph [0018] of Love et al. discloses that the mobile station (MS) is scheduled by the base transceiver station (BTS) and that a maximum rate or equivalently a maximum power margin is indicated by the scheduler, i.e. the BTS.

However, this teaching lacks the feature recited in Applicants' claim 38 of determining scheduling information indicative of:

"allocated maximum amount of uplink resources applicable to the individual HARQ processes for uplink data transmission"

In particular, Love et al. lacks the feature of uplink resources applicable to "the individual HARQ processes." Furthermore, and more importantly, although the "maximum rate" is mentioned in Love et al., there is no teaching that this maximum rate is somehow applicable or related to the individual HARQ processes for uplink data transmission. Although Love et al. mentions ARQ, HARQ and HARQ retransmissions, no scheduling of HARQ processes nor allocation of resources thereto is mentioned in paragraph [0018] or any other related passage of

Love et al.

It is noted that in Love et al., paragraphs [0013] and [0015] as well as paragraphs [0036] to [0039], mention an "ARQ function." In connection with Fig. 3, Love et al. explains in paragraphs [0036] to [0039] the possibility of distributing the ARQ function wherein the active set BTSs simulcast preformatted frames over the forward link, and mentions the signaling of HARQ related information (e.g. HARQ status information) by means of the TFRI. However, there is no mention that this would somehow involve the determination of the maximum rate for a HARQ process as discussed below.

The Final Rejection at pages 3 and 4 alleges that Love et al., paragraphs [0037] to [0039], teach transmitting from a MS to at least one other BTS information on the applicability of allocated maximum amount of uplink resources for uplink data transmissions. The Final Rejection, however, appears to overlook that in Love et al., the scheduling information transmitted from the MS to the BTS of the Active Set does not actually indicate the "allocated maximum amount of uplink resources." In Love et al., the scheduling information 402 received at each Active Set BTS 301, 303, 304 from MS 1014 includes at least one of a queue status and a power status of the mobile station (see paragraphs [0030] and [0041]). Therefore, the TFRI discussed in paragraphs [0037] to [0039] of Love et al. does not correspond to the scheduling information 402 of Love et al., as the information contained in the TFRI bears no relation to the queue status and power status of the mobile station. The queue status and power status signaled within the scheduling information as per Love et al, also are not related to the "information on the applicability of allocated maximum amount of uplink resources for uplink data transmissions" as recited by Applicants' claim 38.

Therefore, in Love et al., scheduling information 402 does not qualify as information on the "applicability of a maximum amount of uplink resources" for uplink transmissions on the individual HARQ processes as in Applicants' claim 38.

The Final Rejection admits that Love et al. fails to teach or suggest that information on the applicability of the maximum amount of uplink resources for uplink data transmission on the individual HARQ processes is communicated from one base station to another base station and that this other base station subsequently considers this information in scheduling other mobile terminals.

Although Legg et al. teaches the exchange of signaling information between base stations, in particular, the communication of signal level measurements between base stations (see column 6, lines 15-33), it should be noted that the signal level measurements of Legg et al. are not comparable to, and do not teach or suggest, the Applicants' claimed information "to inform the at least one other base station on the applicability of allocated maximum amount of uplink resources for uplink data transmissions on the individual HARQ processes" as in Applicants' claim 38.

Furthermore, the Applicants note that column 7, line 6 to 12 of Legg et al., states that the associated base station communicates information under resource allocation to all base stations involved in the soft handover for the user terminal and, upon receiving this information, the non-associated base stations will update their resource allocation so as to support the user terminal according to the resource allocation of the associated base station. This passage does not teach the communication of the maximum amount of uplink resources for uplink data transmission allocated to the respective mobile terminal on individual HARQ processes.

Thus, it is submitted that Legg et al. lacks the above-noted features of instant claim 38, and hence, even if Legg et al.'s teachings were incorporated into Love et al., the result still would not achieve the present claimed invention.

As noted above, it is submitted that those skilled in the art would not have been led or motivated to combine the teachings of Love et al. and Legg et al. Paragraph [0006] and paragraph [0037] of Love et al. mentions that an advantage of the concept presented in Love et al. is to avoid communications among the Active Set BTSs. Accordingly, one skilled in the art would not have been led to change the Love et al. system design of transmitting various information from the mobile stations to the base transceivers stations to an inter-BTS communication scheme as proposed in Legg et al., as this would clearly contradict the main advantage of the system of Love et al.

Accordingly, for at least the above reasons, the Applicants submit that it would not have been obvious to combine the teachings of Love et al and Legg et al. as proposed in the Final Rejection, and, even if these references were combined, the result still would lack the above-noted features of instant claim 38. Thus, it is submitted that the individual or combined teachings of these references fail to render obvious the subject matter of claim 38.

Independent claim 61 similarly recites the above-mentioned subject matter distinguishing method claim 38 from the applied references, but with respect to an apparatus. Therefore, the rejections applied to claims 38 and 61 are considered to be obviated and allowance of claims 38 and 61 and all claims dependent therefrom is deemed to be warranted.

In view of the above, it is submitted that this application is in condition for allowance, and a notice to that effect is respectfully solicited.

If any issues remain which may best be resolved through a telephone communication, the Examiner is requested to telephone the undersigned at the local Washington, D.C. telephone number listed below.

Respectfully submitted,

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